

What is claimed is:

1. A tooth root canal treatment system comprising
  - a manifold having a base member sized and  
5 configured to rest on a crown of a tooth and a top member  
sized and configured to couple with the base member to  
define an inlet chamber and an outlet chamber,  
means for preventing fluid communication  
between the inlet chamber and the outlet chamber,  
10 an opening between the inlet and outlet  
chambers,  
a needle having a proximal end and a distal  
end, the distal end of the needle sized and configured  
for passage through the opening between the inlet and  
15 outlet chambers and extending distally beyond the base  
member and in fluid communication with the outlet  
chamber, the proximal end of the needle including an  
opening in fluid communication with the inlet chamber,  
a fluid supply source coupled to the inlet  
20 chamber, and  
a draining mechanism coupled to the outlet  
chamber.
2. A tooth root canal treatment system
  - a manifold having a base member sized and  
25 configured to rest on a crown of a tooth and a top member  
sized and configured to couple with the base member to  
define an inlet chamber and an outlet chamber,  
means for preventing fluid communication  
between the inlet chamber and the outlet chamber,  
30 an opening between the inlet and outlet  
chambers,  
a needle having a proximal end and a distal  
end, the distal end of the needle sized and configured  
for passage through the opening between the inlet and  
35 outlet chambers and extending distally beyond the base

member and in fluid communication with the outlet chamber, the proximal end of the needle including an opening in fluid communication with the inlet chamber, means for delivering a fluid source to the inlet chamber,  
5 and

means for draining the outlet chamber.

3. A tooth root canal treatment system as in claim 1 or 2 wherein the needle includes a flexible shaft.

10 4. A tooth root canal treatment system as in claim 1 or 2 wherein the opening between the inlet and outlet chambers is a perforation.

5. A tooth root canal treatment system as in claim 1 or 2 wherein the opening between the inlet and  
15 outlet chambers comprises a valve.

6. A tooth root canal treatment system as in claim 5 wherein the valve is a duck bill valve.

7. A tooth root canal treatment system as in claim 1 or 2 wherein the fluid is a treatment solution.

20 8. A tooth root canal treatment system as in claim 1 or 2 wherein the fluid is an irrigation solution.

9. A tooth root canal treatment system as in claim 1 or 2, further comprising  
means for maintaining a net negative pressure  
25 within the manifold.

10. A tooth root canal treatment system comprising

a manifold having a base member sized and configured to rest on a crown of a tooth and a top member  
30 sized and configured to couple with the base member to define an inlet chamber and an outlet chamber,

means for preventing fluid communication between the inlet chamber and the outlet chamber,

a fluid supply source coupled to the inlet  
35 chamber,

a draining mechanism coupled to the outlet chamber, and

means for maintaining a net negative pressure within the manifold.

5           11. A method of treating a tooth root canal comprising the steps of

(a) providing a needle having a proximal end and a distal end,

10           (b) placing a base on a crown of an instrumented tooth,

(c) passing the distal end of the needle through an opening in the base and through a pulp chamber and a pulp canal of the tooth,

15           (d) placing a cap on the base to form a tooth manifold, the tooth manifold having an inlet chamber and an outlet chamber, the proximal end of the needle communicating with the inlet chamber and the distal end of the needle communicating with the outlet chamber,

20           (e) coupling the inlet chamber to a fluid source,

(f) coupling the outlet chamber to a draining mechanism,

(g) drawing the fluid through the inlet chamber into the pulp chamber and pulp canal, and

25           (h) evacuating the fluid from the pulp chamber and the pulp canal through the outlet chamber.

12. A method as in claim 11, further comprising

repeating steps (g) and (h).

30           13. A method as in claim 11, further comprising

maintaining a net negative pressure within the manifold.

35           14. A method of treating a tooth root canal comprising the steps of

(a) placing a base on a crown of an instrumented tooth,

(b) placing a cap on the base to form a tooth manifold, the tooth manifold having an inlet chamber and  
5 an outlet chamber,

(c) coupling the inlet chamber to a fluid source,

(d) coupling the outlet chamber to a draining mechanism,

10 (e) drawing the fluid through the inlet chamber into the pulp chamber and pulp canal, and

(f) evacuating the fluid from the pulp chamber and the pulp canal through the outlet chamber, and

(g) maintaining a net negative pressure within  
15 the manifold during while drawing the fluid and evacuating the fluid.

15. An automated system for treating a tooth root canal having a pulp chamber and pulp canal defining a fluid reservoir, the system comprising

20 a tooth manifold having an inlet chamber and an outlet chamber, the inlet chamber being coupleable to a fluid supply source and the outlet chamber being coupleable to an evacuation source,

means for directing fluid from the inlet  
25 chamber directly into the pulp canal, bypassing the pulp chamber, and

means for evacuating the fluid from the fluid reservoir through the evacuation chamber.

16. A system as in claim 15, further  
30 comprising

means for maintaining a net negative pressure within the manifold while directing fluid from the inlet chamber into the pulp canal and while evacuating the fluid from the fluid reservoir.